

# Implementing Trust-Based Relational Intervention<sup>®</sup> in a Charter School at a Residential Facility for At-Risk Youth

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**Abstract** This study examines the implementation of Trust-Based Relational Intervention<sup>®</sup> (TBRI<sup>®</sup>) in a secondary charter school located at a residential facility for at-risk youth. This intervention has been used successfully with individual families, group homes, summer camps, and more recently, school environments. Through TBRI, school staff created conditions to help children succeed behaviorally with strategies grouped into three evidenced-based principles: (a) empowering, (b) connecting, and (c) correcting. After implementation, results showed that students were more likely to discuss their problematic issues with counselors, used less profanity, were less likely to complain and had fewer behavioral incidents (i.e., physical and verbal aggression, disruptive behavior). In addition, school staff reported improved school culture including an overall more positive mood and countenance among staff and students.

**Keywords** Trust-based relational intervention · At-risk youth · Charter schools · Complex trauma · Behavior

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## Introduction

In the USA, approximately 58,000 youth in foster care receive group-based residential or institutional care (2012 data; U.S. Department of Health and Human Services [US DHHS] 2013), and over 61,000 juveniles live in residential placement facilities through the juvenile justice system (2011 census data; U.S. Office of Juvenile Justice and Delinquency Prevention [US OJJDP] 2014). Charter schools are found on many of these campuses to enable youth to continue their education at these facilities. The number of these residential-based schools across the USA is difficult to determine because the U.S. Department of Education does not identify schools that are based in residential settings in their public databases. However, this information may be found through organizations within individual states. For instance, in Texas, the setting of this study, there are 45 charter schools in the residential treatment center/juvenile detention center (RTC/JDC) category (The Network 2014) serving approximately 3389 children and youth (2012–2013 data; Texas Education Agency [TEA] 2014). The Texas Charter Schools Association defines schools in the RTC/JDC category as public charter schools that serve students in a residential setting or who have been ordered or assigned to attend the school by a court of law. Such students are an atypical school population because at the very least, they have likely experienced separation from their families and homes, compounded with a high probability of having experienced one or more forms of maltreatment or trauma. Because approximately 68 % of Americans have experienced some type of childhood trauma (Copeland et al. 2007), it is probable that this statistic is higher with youth living in RTC/JDC residential facilities.

The type of trauma most commonly experienced by children is complex trauma, which includes physical, sexual, and emotional abuse; neglect; and/or witnessing domestic violence, and is perpetrated on children by their caregivers

(Greeson et al. 2011). Children who have experienced such trauma are likely to maintain a state of hyperarousal and hypervigilance (constantly prepared for fight, flight, or freeze; hypersensitive with a tendency to overreact to, or misinterpret, actions of others or certain elements in their environment that would go unnoticed by others) due to experiencing harmful events in the home, and by parents or caregivers (Perry et al. 1995). We also know that chronic fear obstructs both cognitive and emotional functioning (Anda et al. 2006; Perry 2001), and when fear is reduced (as evidenced by a reduction in the stress chemical cortisol), there are improvements in cognition, behavior, and language (Purvis and Cross 2006). In addition, complex trauma can result in developmental, psychological, and cognitive impairments that can significantly impact school behavior and performance (for a review, see Overstreet and Mathews 2011; Cole et al. 2005).

In schools serving these at-risk populations, interventions that alleviate the effects of trauma have the greatest probability of bringing lasting positive behavioral change. Interventions should promote a sense of safety in students (both through relationships and in the school environment) and ensure that students know that their voices will be heard and their needs will be met (see Bath 2008). In addition, Gregory et al. (2010) found that approaches grounded in authoritative discipline theory, that is, with elements of both structure and support, are highly effective in achieving changes in student behavior. In this sense, *structure* provides appropriate and fair expectations for students based on their individual capacity to achieve these and is combined with *support* from caring adults who build healthy relationships with students, ensure that their needs are met, and work with them to overcome behavioral challenges. Authoritative discipline theory stems from the term *authoritative parenting* which is used to describe parenting that is nurturing and involved, yet also fair and consistent in enforcing rules and expectations (Baumrind 1971).

### Trust-Based Relational Intervention

Teachers and counselors who work with populations with histories of trauma need (a) to be knowledgeable about complex trauma and its effects on youth, (b) to be able to recognize behaviors that result from trauma, and (c) to know how to help students regulate such behaviors (O'Neill et al. 2010). Trust-Based Relational Intervention® (TBRI®) provides teachers with knowledge about these three areas of focus and is grounded in an authoritative model consisting of a balance of structure and nurture. TBRI strategies are categorized into three evidenced-based principles: empowering, connecting, and correcting. First, the empowering principles are evidence-based practices to help students feel safe and nurtured in their environment and also meet their physical needs (Bronfenbrenner and Morris 1998; Lickliter 2008). Students

who feel that their environment is safe and predictable are able to focus their attention on learning, practice new behavioral skills (van den Boom 1994, 1995), and develop healthy emotions and behaviors that are trust-based rather than fear-based (Knight et al. 2004). Creating a calm, positive atmosphere and establishing predictable daily routines can help students feel safe in their environment. Physical needs are met through hydration, food, and appropriate sensory input. For instance, students who are hydrated exhibit improved behavior and mental functioning, including attention and memory performance (Bar-David et al. 2005; Edmonds and Burford 2009; Edmonds and Jeffes 2009; Wilson and Morley 2003). Allowing students to keep water bottles at their desks can meet this need. Also, regularly scheduled snacks (recommended every 2 h) help maintain adequate blood sugar levels, positive behaviors, stable moods, and optimal cognitive functioning including attention and self-regulation (Benton et al. 1987; Benton and Stevens 2008; Gailliot et al. 2007).

Also, there is evidence that youth with histories of trauma or maltreatment, and those with behavioral problems, often have sensory processing disorders (SPDs) that can negatively impact behavior, social skills, motor skills, and academic performance (Cermak 2009; Cermak and Groza 1998; Gourley et al. 2013; Purvis and Cross 2007; Purvis et al. 2013b). Sensory issues can cause children to over- or under-react to tactile sensations, noises, smells, tastes, or other sensory input (see <http://www.spdfoundation.net/about-sensory-processing-disorder.html>). These issues can also cause difficulty with self-regulation and navigating relationships because social cues are interpreted and reacted to differently and/or more dramatically than the norm. Thus, interactions with these children can lead to misunderstandings and conflict. TBRI includes techniques to alleviate the effects of sensory issues and related behavioral challenges.

Second, the connecting principles promote relationship building, which can help reverse the adverse effects of early stress on the brain, reduce stress-related behavior, and improve psychosocial functioning (Fisher et al. 2006). Relationship building focuses on four skills that promote secure meaningful relationships: (a) the ability to seek care, (b) the ability to give care, (c) the ability to negotiate, and (d) the ability to feel comfortable with an autonomous self (Cassidy 2001). Third, the correcting principles are proactive steps that prevent disruptive behavior before it happens, including teaching appropriate behaviors for challenging situations (Colvin and Sugai 1988; Colvin et al. 1993). TBRI proactive strategies, including self-regulation techniques and social skills, are often taught through behavioral rehearsals such as role play within the context of nurture groups (small group activities that provide nurture and build social skills). Social skills are taught by practicing life values such as using respect, making eye contact, using words to replace negative behaviors, being gentle and kind, accepting consequences,

accepting *no*, asking permission, and others. While proactive strategies reduce the number and intensity of behavioral challenges, when they do occur, the Ideal Response<sup>®</sup> is used. With this approach, the adult's response is matched in intensity to the level of the behavioral challenge, and the relational connection is maintained with the child during the corrective episode (see Purvis et al. 2007b).

Nurture groups are a key component of TBRI because they are effective vehicles for learning relationship and communication skills, and teaching self-regulation. The basic structure of nurture groups consists of six steps. Steps 1 (review group rules), 2 (check-in activity), 3 (Band-Aids<sup>®</sup> activity), 5 (feeding activity), and 6 (closing activity) are Theraplay<sup>®</sup> activities (see *Theraplay*<sup>®</sup> for groups; Rubin and Tregay 1989) with step 4 added to provide social skills practice. It should be noted that while nurture groups were not conducted at the school involved in this study, they were conducted on a regular basis in the residential home units and may have been an influencing factor on students at school.

Developed at the Institute of Child Development at Texas Christian University, TBRI has been used successfully with families, group homes, summer camps, and school environments. Other publications describe the components of TBRI in more detail (Purvis et al. 2013a, 2011, 2007b, 2009), empirical evidence supporting TBRI (Purvis and Cross 2007; Purvis et al. 2007a, b, 2012), and implementation in a public school setting (Parris et al. 2014). In one study (Purvis et al. 2007a), children who attended a TBRI summer camp demonstrated significant decreases in thought problems, attention problems, aggressive behavior, depressive symptoms, negative mood, and salivary cortisol levels (indicating reduced stress and anxiety) as well as improvements in attachment behaviors and interpersonal relationships. In another study, after implementing TBRI in a public elementary school with a large at-risk population, the school reported an 18 % decrease in incident reports and 23 % decrease in the number of office referrals for the most frequently referred students (Parris et al. 2014). With the success of TBRI in these settings, we hypothesized that it would also produce positive behavioral results in a charter school located at a residential facility for at-risk youth.

## Purpose of the Study

Because complex trauma can lead to issues that interfere with students' behavior at school, the purpose of this study was to conduct an evaluation of TBRI within a secondary charter school located on the campus of a residential facility for youth. We sought to determine whether TBRI implementation at the school would have an effect on behavioral outcomes. This study describes one school's implementation of the

intervention and the behavioral outcomes they have experienced with students.

## About the School

The charter school is located on a residential care campus in the state of Texas, USA. The facility accepts youth placed by Child Protective Services, County Juvenile Probation Departments, and parents/guardians. Youth come into care for a variety of reasons including abuse/neglect, family violence, parent-child conflict, difficulties at school, and behavioral issues. The school had 23 teachers and 138 students in grades 7–12 at the time the study began (TEA, 2011–2012). Student ethnicity was 49 % white, 35 % African-American, 12 % Hispanic, and 4 % others. One hundred percent of the students attending this school were economically disadvantaged and determined to be at risk of dropping out of school according to Texas Education Agency guidelines (<http://ritter.tea.state.tx.us/perfreport/aeis/2012/glossary.html>).

## Methods

Data were collected by interviewing school staff and administrators about their experiences and observations regarding the intervention and student behaviors and by obtaining school incident reports. Focus groups were conducted by a researcher from the Texas Christian University (TCU) Institute of Child Development with school staff 1 month prior to the second year of school implementation, 3 months after the start of the second year of implementation, and 1 month after the second year of implementation. All focus groups were conducted with six staff members from the school, including three youth care counselors (behavioral support staff), the director of the behavioral support staff, the at-risk coordinator, and the school coordinator for the children's residential facility. At the end of the second year of implementation, individual interviews were also conducted with the school principal, director of behavioral support staff (also interviewed in the focus groups), and the residential facility administrator with jurisdiction over the charter school.

The focus groups and individual interviews took place in a conversational manner to encourage participants to speak candidly and spontaneously from their memory about their experience with the TBRI implementation process. Interviews were audio recorded and transcribed. Transcripts were analyzed by the first author to determine common themes and salient examples of experiences regarding TBRI implementation and outcomes. Results were discussed with the research team and were determined to be consistent with their own observations and experiences based on their ongoing

communication with school administration and staff during the TBRI implementation process.

For the present study, reliability and validity were established through triangulation (Creswell and Miller 2000; Denzin 1978; Dobbert 1982, p. 265; Marshall and Rossman 1999), including (a) conducting focus groups at three separate time points during the study, (b) conducting focus groups and individual interviews with multiple individuals working in different capacities in the school, and (c) corroborating focus group and interview data with an analysis of school incident reports.

### Implementation of the Intervention

In August of 2011, the residential facility began the implementation of TBRI, including training and support for all residential staff and administrators. As employees of the residential facility, the behavioral support staff for the school also received this training. Behavioral support staff assist teachers with student behavioral issues and, at times, substitute in the classroom when a teacher is absent and a substitute teacher is not available. Teachers, as employees of the school, received no TBRI training.

While there was not yet an official plan to implement TBRI in the school, the behavioral support team was able to work with school administrators to implement some components of TBRI on a limited basis during the school year 2011–2012. In the focus group interview conducted after this first year of limited implementation, participants reported that they had brought in a few of the empowering and connecting practices to use at the school. They specifically mentioned practices such as allowing students to chew gum (reduces stress and anxiety; Leveille et al. 2008; Sketchley-Kaye et al. 2011); making snacks available to students when they were in the counseling office; using common TBRI language to help students find words to express themselves; encouraging students to use healthy/appropriate words; finding opportunities to build relationships with students such as talking with them when they were having a bad day, during lunch, or during encounters in the hallway; and giving affirmations and *yeses* when possible. Thus, during that first year of implementation, students were being familiarized with TBRI concepts and practices in both the residential setting and on a more limited basis at the school.

Prior to the start of the next school year (2012–2013), all teachers and school behavioral support staff attended 2 days of TBRI training, conducted at the residential facility by researchers from the TCU Institute of Child Development. The 2-day TBRI training included presentations about complex trauma and its effects on children and youth, recognizing behaviors that result from trauma, and trauma-informed behavioral intervention strategies embedded within the context

of TBRI (described above). During the 2-day training, a sensory integration professional also made a short presentation about concepts pertaining to the management of sensory processing issues with children. In September 2012, the sensory integration professional conducted an additional day of training for the ten members of the behavioral support team. This training included more in-depth information on sensory processing issues and guidance on how to set up sensory equipment for the sensory room that was being created in the school. In October of 2012, the school's principal, the superintendent of the charter school system to which this charter school belonged, and a behavioral specialist for the school, all attended a 5-day TBRI training conducted by the TCU Institute of Child Development near the TCU campus. This training covered the same topics as the 2-day training for the teachers, but the additional days provided time for more depth and breadth of coverage. This 5-day TBRI training is also offered several times per year by the Institute of Child Development and is available to participants from all types of child care and child welfare organizations, including educators, who may register to attend.

### November of the Second Year of Implementation

Three months into the school year 2012–2013 (November 2012), a focus group was conducted to obtain a description of the TBRI implementation process at the school. School staff could already see that noticeable positive changes were occurring in the school. Based on the discussion, participants reported 13 TBRI components that were now being implemented at the school. Even during these first 3 months of the school year, the school had experienced a substantial decrease in behavior problems and office referrals from previous years (see Table 1). Of the 13 components mentioned, five were considered to be empowering principles, four were connecting principles, and four were correcting principles.

First, the empowering principles that participants reported being implemented at the school were hydration, snacks, fidgets, removing conflict triggers, and the sensory room. For instance, participants stated that all students may keep water bottles with them or have a drink at a water fountain any time they ask. In addition, they stated that snacks are offered to students twice a day (at the end of the first and third period). Teachers keep a basket filled with assorted healthy snacks in their classroom (crackers, beef sticks, nuts, etc.), and students can choose what they want from the basket. The school provides the snacks for teachers to put in their baskets.

Teachers were also provided with a supply of five or six different types of fidgets to keep available for students to use at will (e.g., stress balls, silly putty). Students can ask for a fidget at any time during the day. Regarding the removal of conflict triggers, participants stated that certain school policies



**Table 1** Number of incident reports for aggressive and disruptive behavior

	Pre-TBRI		TBRI year 1		TBRI year 2	
	2010–2011		2011–2012		2012–2013	
	Fall	Spring	Fall	Spring	Fall	Spring
Verbal aggression						
Threats	5	2	2	2	0	0
Disrespect	28	66	49	81	0	14
Profanity	10	5	10	4	0	0
Subtotal	43	73	61	87	0	14
Disruptive behavior						
Class disruption	208	364	157	226	5	25
Cafeteria disruption	14	95	14	7	0	0
Horseplay/PDA	47	23	40	20	0	4
Subtotal	269	482	211	253	5	29
Physical aggression						
Physical contact against peer	9	26	3	18	4	7
Physical contact against staff	0	1	1	1	0	0
Subtotal	9	27	4	19	4	7
Total	325	584	411	649	10	50

had been a point of unnecessary consistent conflict with students and were removed. For instance, before TBRI was implemented, students had to earn the privilege to wear *free dress* on Fridays and go outside to eat lunch. However, upon implementation of TBRI, the school dropped that system and allowed everyone to go outside for lunch and wear free dress on Fridays. Also, during lunch, students are now allowed to listen to music through headphones (e.g., using iPod or cell phone). This has also helped reduce lunchtime conflicts between students. The earplugs and music also help some students regulate the sensory overload from the cafeteria (e.g., excess noise, crowds, activity).

Finally, the school created a sensory room, a place for students to go, accompanied by behavioral support or other school staff, to calm down and reflect, talk, escape from sensory overload, and/or meet sensory needs. The sensory room at the school contains a variety of sensory items (e.g., hand fidgets, foot fidgets, a variety of beanbags, free-standing boxing bag, weighted lap pads, T-stool, music to listen to). Students can ask to leave their classroom to go to the sensory room if they need to calm down or if they just feel it would be helpful to go there. Students can also be referred to the sensory room by teachers or other staff who feel they would benefit from it. If a particular item from the sensory room is helpful to a student, such as a weighted lap pad or specific type of fidget, then the student can check it out each day and take it with them to class.

Next, the connecting principles mentioned by participants included relationship building, healthy touch, affirmations, and helping students reenter the classroom after a disruption.

Regarding relationship building, participants stated that teachers are now expected to build relationships with students and try to work through problems instead of immediately referring them to the office. Also, when conflicts arise, behavioral support staff may observe in that classroom, take the student out of the classroom for a few minutes and talk to them, or take them to the sensory room. After a student is able to regulate him or herself, they are expected to reenter the classroom when time permits. Behavioral support staff will accompany the student back to the room, and they will bring the teacher out into the hallway to discuss the incident respectfully before the student reenters the room. Also, school staff try to incorporate healthy touch (e.g., a hug, pat on the back, or high five) when possible as a way to build relationships. Finally, participants stated that school staff give verbal affirmations to students whenever possible.

Third, correcting principles reported by participants were individualized consequences; care in determining when referrals are needed; using and promoting TBRI terms, including *compromise*, *redo*, etc.; and preventative staff meetings. Regarding individualized consequences, participants stated that before TBRI was implemented, there were automatic, predetermined consequences for specific violations. Now, each situation is taken into consideration individually, and other options are also considered. For example, less serious classroom disruptions are now treated as a way to help students regain control of their own behavior, and relationship building actions rather than punitive actions are taken (e.g., talking to the student, trip to sensory room, redo).

About using TBRI terms, participants stated that two of the most commonly used TBRI terms at the school are compromise and redo. For example, in situations that evolve into power struggles, students are given an opportunity to compromise, and in other instances, either the student or teacher may ask for a redo (either verbally or physically). For verbal incidents or incidents where a physical redo is not practical, the teacher might say “Tell me how you would have done that differently if you could go back and re-do that incident.” In other instances, the student is asked to go back and physically correct what they did not do properly the first time. About preventative staff meetings, participants stated that now, without the constant flow of students coming to the office, behavioral staff have time to hold meetings with teachers to discuss preventive measures to help students’ overcome the underlying issues causing their behaviors. In the past, behavioral staff had little time to conduct these types of meetings because they were busy dealing with a flow of students all day who were being sent to the office and five or six students a day in *in-school suspension*.

## Results

During the focus group following the first year of implementation (limited implementation), participants noted that students were more likely to discuss their problematic issues with behavioral support staff, students used less profanity and were less likely to complain, and serious incidents (especially fighting) and restraints had decreased at the school that year. A check of school referral data after the first year of implementation showed a 33 % decrease in referrals for physical aggression or fighting with peers (35 in 2010–2011; 23 in 2011–2012). There was only a small difference in referrals for verbal aggression or disruptive behavior (see Table 1). During the focus groups conducted 1 year later, following the second year of TBRI implementation, school staff and administrators reported a noticeable improvement in student behavior as well as an improved school culture including an overall more positive mood and countenance among staff and students. A check of referral data showed a 68 % decrease in referrals for physical aggression after the second year (35 in 2010–2011; 11 in 2012–2013), an 88 % decrease in referrals for verbal aggression (116 in 2010–2011; 14 in 2012–2013), and a 95 % decrease in referrals for disruptive behavior (751 in 2010–2011; 34 in 2012–2013). Overall, there were 902 of these types of referrals combined in 2010–2011 and only 59 in 2012–2013, resulting in a 93.5 % decrease in these types of incidents after the first 2 years of the implementation process (see Table 1).

## Conclusion

The goal of this study was to conduct an evaluation of TBRI within a charter school at a residential facility for youth and to determine if there were any effects on behavioral outcomes. After 2 years of implementation (with very limited implementation in the first year), data show that behavioral outcomes of students did improve. This finding provides further evidence that addressing the underlying causes of behavioral issues of those who have experienced complex trauma can result in better behavioral outcomes. A limitation of this study is that TBRI was implemented in the residential facility, including twice weekly nurture groups within the home units, during the same time implementation had begun in the school. This may have aided in the acceleration of positive effects at the school. For schools in non-residential settings that implement this intervention, students are not likely to have this additional exposure to TBRI outside of the school environment. Also, although the current findings regarding office referrals are compelling, it is important to note that during implementation of TBRI, the protocol for giving office referrals was changed. Teachers were now expected to build relationships with students and to try and work through problems instead of immediately referring them to the office. When problems arose, support staff came to observe in the classroom to try and determine the cause of a behavior, take the student out of the classroom for a few minutes to talk with them, and/or take them to the sensory room. Less serious classroom disruptions were now treated as a way to help students learn to regain control of their own behavior rather than being a catalyst for immediate referral to the office. In addition, this implementation occurred at one school, and the exact nature of TBRI implementation may be different in different schools, thus producing different outcomes. Future studies should investigate this intervention in other schools located on residential campuses to gain a broader understanding of TBRI implementation and its effects in these settings. In addition, implementation of TBRI at this school is ongoing and the school continues to take steps to attain a more robust implementation of TBRI as well as to maintain fidelity to the program.

Because youth living in foster- or court-appointed residential facilities have experienced separation from their families and have likely experienced some form of maltreatment and/or trauma, it is important to implement trauma-informed behavioral interventions that will meet the developmental, psychological, cognitive, and physical needs of this population. Such interventions are most likely to alleviate the effects of trauma and have the greatest probability of bringing lasting positive behavioral change to these youth. Specifically, these interventions should make provisions to ensure that children’s physical and relational needs are met; promote a feeling of safety; provide both fairness and consistency with expectations along with nurturing support by caring adults; and take

proactive steps in meeting behavioral needs, including helping youth develop self-regulatory skills. Finally, a reduction in behavioral problems in school can lead to more positive and productive interactions between students and their teachers and peers and can provide more classroom time devoted to learning.

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## References

- Anda, R. F., Felitti, V. J., Bremner, D., Walker, J. D., Whitfield, C., Perry, B. D., et al. (2006). The enduring effects of abuse and related adverse experiences in childhood: a convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience*, 4(256), 174–186.
- Bar-David, Y., Urkin, J., & Kozminsky, E. (2005). The effect of voluntary dehydration on cognitive functions of elementary school children. *Acta Paediatrica*, 94, 1667–1673.
- Bath, H. (2008). The three pillars of trauma-informed care. *Reclaiming Children and Youth*, 17(3), 17–21.
- Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monographs*, 4(1), part 2.
- Benton, D., Brett, V., & Brain, P. F. (1987). Glucose improves attention and reaction to frustration in children. *Biological Psychology*, 24(2), 95–100.
- Benton, D., & Stevens, M. K. (2008). The influence of a glucose containing drink on the behavior of children in school. *Biological Psychology*, 78(3), 242–245.
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (5th ed.). New York: Wiley.
- Cassidy, J. (2001). Truth, lies, and intimacy: an attachment perspective. *Attachment & Human Development*, 3(22), 121–155.
- Cermak, S. (2009). Deprivation and sensory processing in institutionalized and postinstitutionalized children: part 1. Sensory integration and special interest section quarterly. *American Occupational Therapy Association*, 32(2), 1–3.
- Cermak, S., & Groza, V. (1998). Sensory processing problems in post-institutionalized children: implications for social work. *Child and Adolescent Social Work Journal*, 15(1), 5–36.
- Cole, S. F., O'Brien, J. G., Gadd, M. G., Ristuccia, J., Wallace, D. L., & Gregory, M. (2005). *Helping traumatized children learn: supporting school environments for children traumatized by family violence*. Boston: Massachusetts Advocates for Children.
- Colvin, G., & Sugai, G. (1988). Proactive strategies for managing social behavior problems: an instructional approach. *Education and Treatment of Children*, 11, 341–348.
- Colvin, G., Sugai, G., & Patching, W. (1993). Precorrection: an instructional approach for managing predictable problem behaviors. *Intervention in School and Clinic*, 28, 143–150.
- Copeland, W. E., Keeler, G., Angold, A., & Costello, E. J. (2007). Traumatic events and posttraumatic stress in childhood. *Archives of General Psychiatry*, 64, 577–584.
- Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory Into Practice*, 39(3), 124–130.
- Denzin, N. K. (1978). *The research act: a theoretical introduction to educational anthropology* (2nd ed.). New York: McGraw-Hill.
- Dobbert, M. L. (1982). *Ethnographic research: theory and application for modern schools and societies*. New York: Praeger.
- Edmonds, C. J., & Burford, D. (2009). Should children drink more water? The effects of drinking water on cognition in children. *Appetite*, 52(3), 776–779.
- Edmonds, C. J., & Jeffes, B. (2009). Does having a drink help you think? 6–7 year old children show improvements in cognitive performance from baseline to test after having a drink of water. *Appetite*, 53, 469–472.
- Fisher, P. A., Gunnar, M. R., Dozier, M., Bruce, J., & Pears, K. C. (2006). Effects of therapeutic interventions for foster children on behavioral problems, caregiver attachment, and stress regulatory neural systems. *Annals of New York Academy of Sciences*, 1094, 215–225.
- Gailliot, M. T., Baumeister, R. F., DeWall, C. N., Maner, J. K., Plant, E. A., Tice, D. M., et al. (2007). Self-control relies on glucose as a limited energy source: willpower is more than a metaphor. *Journal of Personality and Social Psychology*, 92(2), 325–336.
- Gourley, L., Wind, C., Henninger, E. M., & Chinitz, S. (2013). Sensory processing difficulties, behavioral problems, and parental stress in a clinical population of young children. *Journal of Child & Family Studies*, 22, 912–921.
- Greeson, J. P., Briggs, E. C., Kisiel, C. L., Layne, C. M., Ake, G. S., III, Ko, S. J., et al. (2011). Complex trauma and mental health in children and adolescents placed in foster care: findings from the national child traumatic stress network. *Child Welfare*, 90(6), 91–108.
- Gregory, A., Cornell, D., Fan, X., Sheras, P., Shih, T., & Huang, F. (2010). Authoritative school discipline: high school practices associated with lower bullying and victimization. *Journal of Educational Psychology*, 102(2), 483–496.
- Knight, D. C., Smith, C. N., Cheng, D. T., Stein, E. A., & Helmstetter, F. J. (2004). Amygdala and hippocampal activity during acquisition and extinction of human fear conditioning. *Cognitive, Affective, and Behavioral Neuroscience*, 4(3), 317–325.
- Leveille, G., McMahon, K., Alcantara, E., & Zibell, S. (2008). Benefits of chewing gum. *Nutrition Today*, 43(2), 75–81.
- Lickliter, R. (2008). Theories of attachment: the long and winding road to an integrative developmental science. *Integrative Psychological & Behavioral Science*, 42, 397–405.
- Marshall, C., & Rossman, G. B. (1999). *Designing qualitative research* (3rd ed.). Thousand Oaks: Sage.
- O'Neill, L., Guenette, F., & Kitchenham, A. (2010). 'Am I safe here and do you like me?' Understanding complex trauma and attachment disruption in the classroom. *British Journal of Special Education*, 37(4), 190–197.
- Overstreet, S., & Mathews, T. (2011). Challenges associated with exposure to chronic trauma: using a public health framework to foster resilient outcomes among youth. *Psychology in the Schools*, 48(7), 738–754.
- Parris, S.R., Milton, H.S., Harlow, J.G., Cross, D.R., & Purvis, K.B. (2014). The importance of addressing complex trauma in schools: implementing Trust-Based Relational Intervention in an elementary school. *ENGAGE: An International Journal on Research and Practices in School Engagement*, 1(2).
- Perry, B. D., Pollard, R. A., Blakley, T. L., Baker, W. L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and “use-dependent” development of the brain: how “states” become “traits”. *Infant Mental Health Journal*, 16(4), 271–291.
- Perry, B. D. (2001). The neurodevelopmental impact of violence in childhood. In D. Schetky & E. P. Benedek (Eds.), *Textbook of child and adolescent forensic psychiatry* (pp. 221–238). Washington: American Psychiatric Press.

- Purvis, K. B., & Cross, D. R. (2006). Improvements in salivary cortisol, depression, and representations of family relationships in at-risk adopted children utilizing a short-term therapeutic intervention. *Adoption Quarterly*, 10(1), 25–43.
- Purvis, K. B., & Cross, D. R. (2007). Facilitating behavioral change in adopted children suffering from sensory processing disorder. In T.C. Atwood, L.A. Allen, & V.C. Ravenel, (Eds.), *Adoption factbook IV* (pp. 375–379).
- Purvis, K. B., Cross, D. R., Dansereau, D., & Parris, S. R. (2013a). Trust-based relational intervention (TBRI): a systematic approach to complex developmental trauma. *Child and Youth Services*, 34, 360–386.
- Purvis, K. B., Cross, D. R., Federici, R., Johnson, D., & McKenzie, L. B. (2007b). The hope connection: a therapeutic summer day camp for adopted and at-risk children with special socio-emotional needs. *Adoption and Fostering*, 31(4), 38–48.
- Purvis, K. B., Cross, D. R., Jones, D., & Buff, G. (2012). Transforming cultures of care: a case study in organizational change. *Reclaiming Children and Youth, Special Edition on Practice-Based Evidence*, 21(2), 12–20.
- Purvis, K. B., Cross, D. R., & Pennings, J. S. (2009). Trust-based relational intervention™. Interactive principles for adopted children with special social-emotional needs. *Journal of Humanistic Counseling Education and Development*, 48, 3–48.
- Purvis, K. B., Cross, D. R., & Sunshine, W. L. (2007c). *The connected child: bring hope and healing to your adoptive family*. New York: McGraw-Hill.
- Purvis, K. B., McKenzie, L. B., Cross, D. R., & Razuri, E. B. (2013b). A spontaneous emergence of attachment behavior in at-risk children and a correlation with sensory deficits. *Journal of Child and Adolescent Psychiatric Nursing*, 26(3), 165–172.
- Purvis, K. B., Parris, S. R., & Cross, D. R. (2011). Trust-based relational intervention®: principles and practices. In E. A. Rosman & C. E. Johnson (Eds.), *Adoption factbook V* (pp. 497–503). Alexandria: National Council for Adoption.
- Rubin, H. B., & Tregay, J. (1989). *Play with them: Theraplay groups in the classroom*. Springfield: Charles C. Thomas.
- Sketchley-Kaye, K., Jenks, R., Miles, C., & Johnson, A. J. (2011). Chewing gum modifies state anxiety and alertness under conditions of social stress. *Nutritional Neuroscience*, 14(6), 237–242.
- Texas Education Agency (TEA) (2014). Academic Excellence Indicator System (AEIS) [Data file]. <http://ritter.tea.state.tx.us/perfreport/aeis/index.html>
- U.S. Department of Health and Human Services (US DHHS) (2013). The AFCARS report: preliminary FY<sup>1</sup> 2012 estimates as of November 2013. <http://www.acf.hhs.gov/sites/default/files/cb/afcarsreport20.pdf>
- U.S. Office of Juvenile Justice and Delinquency Prevention (US OJJDP) (2014). Statistical briefing book. <http://www.ojjdp.gov/ojstatbb/ezacjrp/asp/display.asp>
- The Network (2014). Find a school [interactive data file]. <http://www.txcharternetwork.org/domain/24>
- van den Boom, D. C. (1994). The influence of temperament and mothering on attachment and exploration: an experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Development*, 65(5), 1457–1477.
- van den Boom, D. C. (1995). Do first-year intervention effects endure? Follow-up during toddlerhood of a sample of Dutch irritable infants. *Child Development*, 66(6), 1798–1816.
- Wilson, M. M., & Morley, J. E. (2003). Impaired cognitive function and mental performance in mild dehydration. *European Journal of Clinical Nutrition*, 57, S24–S29.
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